

Table I-4 Tests for the significance of the decline in HUTs after the imposition of PTAR in selected seasons: comparison of declines in weekday averages by period

Period and television season	Average decline in viewing relative to the pre-PTAR sample	t-statistic for pairwise difference in means	p-value for the hypothesis that the means of ratios are the same (1-tailed test)	Average reduction in HUTs (millions)
7:30-8:00 p.m.				
1972/73	-1.46	-2.29	0.0156	0.946
1976/77	-1.44	-1.90	0.0350	1.026
8:30-9:00 p.m.				
1972/73	-0.21	-0.31	0.3801	
1976/77	0.30	n.a.	n.a.	

The change in the percentage of households using television during the access hour between the pre-PTAR sample and later seasons may have been the result of secular trends in television viewing affecting all periods and unrelated to PTAR. To isolate the effect of PTAR during 7:30-8:00 p.m., the changes in the weekly *ratio* of the percentage of households using television during 7:30-8:00 p.m. to the percentage of households 8:00-8:30 p.m. were examined. Secular changes in viewing habits unrelated to PTAR should leave this ratio relatively unchanged. If, however, PTAR reduced television audiences during 7:30-8:00 p.m. when network programming was withdrawn, the ratio should have fallen immediately after the imposition of the rule.

The analysis compared the ratio for each week of the pre-PTAR sample with the corresponding weekly ratio for the 1972/73 and 1976/77 seasons. The first column of Table I-5 presents the average change in this ratio relative to the pre-PTAR sample. A pairwise t-test is used to test whether the mean of the weekly ratios in each season is statistically significantly lower than the mean of the weekly ratios in the pre-PTAR sample. The second column of Table I-5 presents the autocorrelation-corrected t-statistic, and the third column presents the p-value for the test that the pre- and post-PTAR means

are equal. For both seasons, the decline in the ratio was statistically significant. Based on the average decline in the viewership ratio, the fourth column presents the lost percentage share of TV households during 7:30–8:00 p.m., and the fifth column calculates the reduction in the number of TV households using television relative to the pre-PTAR sample. The ratio method reveals a decline in television viewership during 7:30–8:00 p.m. of approximately 600 to 700 thousand households.

Table I-5 Tests for the significance of the decline in the ratio of HUTs from 7:30–8:00 p.m. to 8:00–8:30 p.m. after the imposition of PTAR in selected seasons

Television season	Average weekly decline in ratio relative to the pre-PTAR sample	t-statistic for pairwise difference in means	p-value for the hypothesis that the means of ratios are the same (1-tailed test)	Average reduction in 7:30–8:00 p.m. viewing as percentage of TVHH	Average reduction in HUTs 7:30–8:00 p.m. (in millions)
1972/73	–0.015	–6.46	0.0000	0.9	.607
1976/77	–0.016	–10.62	0.0000	1.0	.710

Appendix J

Impact of PTAR on viewer welfare

One impact of PTAR was to reduce the number of hours of network programming available to viewers. To the extent that viewers valued the displaced network programming more than the programming that was aired in its place, PTAR reduced their welfare. This appendix develops an estimate of the loss in consumer surplus of viewers resulting from the adoption of PTAR. The estimate is developed using data on the value of viewing options and viewing patterns from the period when the Rule initially took effect.

When television is provided free to an individual, the maximum price the individual would pay for the quality of viewing available rather than go without is a measure of the individual's welfare gain from free television of that quality. An estimate of cable household valuations of viewing alternatives was developed in 1971 by Noll, Peck and McGowan (NPM) based on data from the 1960s.¹⁴⁵ Their model permits the computation of the share of income that households would give up in order to obtain a given level of free television programming rather than have no service at all, and hence provides a measure of the value of viewing options. NPM find that network programming is highly valued compared to the programming of independents, and that welfare increases, although at a rapidly diminishing rate, with the addition of either networks or independents.

NPM's estimate of the consumer surplus of households generated by providing a given level of free television differs for affiliated and independent stations, and depends on the number and mix of stations available. For instance, NPM estimate that viewers would give up 5.07 percent of their total income to receive three affiliated stations. On the other hand, viewers would only give up 1.34 percent of their income to receive three independent stations.

¹⁴⁵ NOLL et al., *supra* note 58.

This difference between viewers' valuation of affiliated stations and independent stations provides a method to estimate the loss in viewer welfare resulting from PTAR. By restricting viewers' access to network programming, PTAR effectively turns a network affiliate station into an independent station for the period affected by the Rule. Given NPM's estimates, viewers are willing to pay 3.73 percent of their total income (5.07 minus 1.34) to view network programming on ABC, CBS and NBC affiliates rather than the programming available on three independent stations.

While viewers are willing to pay 3.73 percent of their total income to view network rather than independent programming, PTAR did not eliminate all network programming. Therefore, an estimate of the percent of network viewing affected by the Rule has been developed. Network programming is available not only during prime time, but also during other dayparts. Viewers' valuation of network programming during prime time relative to other dayparts has been estimated based on the ratio of the broadcast networks' advertising revenues from prime time relative to their total advertising revenues. Since advertising revenues are related to audience size, they serve as a proxy for viewership patterns. Based on BAR estimates, 56.7 percent of ABC, CBS and NBC advertising revenue during 1971 was from prime-time sales.¹⁴⁶ The Rule reduced the number of prime-time hours of network programming by approximately one seventh.¹⁴⁷ Hence, about 8.1 percent of the viewers' valuation of network programming (one seventh of 56.7 percent) was eliminated by the Rule. This translates into a reduction of consumer surplus equal to 0.3 percent of total viewer income (8.1 percent of 3.73 percent).

146 BROADCAST ADVERTISERS REPORTS network-TV dollar revenue estimates as reported in BROADCASTING, Jan. 15, 1973, at 22. Prime-time revenues were \$895,497,900 out of total 1971 revenues of \$1,580,489,200.

147 At the start of the 1970/71 television season, the season prior to the Rule, ABC, CBS and NBC combined offered 74.5 hours of prime-time programming. At the start of the 1971/72 season, the first season under PTAR, this number was reduced to 63 hours. It remained at 63 hours for the next two television seasons. Beginning in the 1975/76 season, the amount increased to 66 hours. See McNeil, *supra* note 119, at 929-934.

To translate this estimate of the impact of PTAR on viewer welfare from a percentage of income to dollars, an estimate of total viewer income has been developed. In 1971, per capita personal income was \$4,302.¹⁴⁸ This is multiplied by 3.14, the national average size of a household in 1971,¹⁴⁹ and by 62.1 million, the number of television households in 1971,¹⁵⁰ to arrive at an estimated \$839 billion in total viewer income in 1971.

Combining the estimate of total viewer income with the estimate of the impact of PTAR on consumer surplus measured as a percent of income, it is estimated that PTAR reduced viewer welfare by \$2.5 billion per year. This estimate is in 1971 dollars. Adjusted for inflation, this amounts to \$8.5 billion in 1994 dollars.¹⁵¹ Since 1971, several factors have changed which might affect this estimate. For example, increasing household income would tend to increase the welfare loss in dollar terms, but this might be offset by the growth of cable networks. Ignoring the various factors that may have changed since 1971, the present value of the total consumer surplus lost since 1971 due to the Rule is over \$200 billion.

148 1994 ECONOMIC REPORT OF THE PRESIDENT 277.

149 U.S. BUREAU OF THE CENSUS, STATISTICAL ABSTRACT OF THE UNITED STATES 40 (1973).

150 THE POCKETPIECE REPORT, NIELSEN TELEVISION INDEX, 1971-72 television season.

151 The inflation adjustment is based on the GDP Implicit Price Deflator. The index was 37.1 in 1971 and was 126.1 in 1994. 1995 ECONOMIC REPORT OF THE PRESIDENT 278.

Appendix K Nielsen share data

Table K-1 Audience share Monday–Sunday 7 a.m. – 1 a.m.

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	18	18	17
CBS affiliates	18	16	21
NBC affiliates	17	16	19
Fox affiliates	11	12	10
Independents	9	12	3
PBS	4	4	3
Basic cable	31	29	33
Pay cable	4	5	4

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	16	17	15
CBS affiliates	15	14	16
NBC affiliates	16	15	17
Fox affiliates	9	10	8
Independents	7	9	2
PBS	3	3	3
Basic cable	43	42	46
Pay cable	6	7	6

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	22	22	23
CBS affiliates	24	21	31
NBC affiliates	20	19	23
Fox affiliates	15	15	13
Independents	14	19	3
PBS	5	6	5
Basic cable	2	2	3
Pay cable	–	–	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994–Nov. 27, 1994).

Table K-2 Audience share Monday-Saturday 8-11 P.M. and Sunday 7-11 P.M.

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	20	20	21
CBS affiliates	21	20	23
NBC affiliates	19	18	19
Fox affiliates	11	12	9
Independents	8	11	2
PBS	4	4	3
Basic cable	28	27	32
Pay cable	5	5	4

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	18	18	17
CBS affiliates	18	18	19
NBC affiliates	17	17	17
Fox affiliates	10	11	9
Independents	6	8	2
PBS	3	3	3
Basic cable	41	39	45
Pay cable	7	7	6

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	24	23	28
CBS affiliates	26	24	32
NBC affiliates	22	21	23
Fox affiliates	14	15	11
Independents	12	16	2
PBS	6	6	5
Basic cable	2	2	3
Pay cable	1	-	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994-Nov. 27, 1994).

**Table K-3 Audience share Monday-Sunday 7 a.m. – 1 a.m.
except prime time**

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	17	18	16
CBS affiliates	16	14	20
NBC affiliates	16	15	18
Fox affiliates	11	11	10
Independents	10	13	3
PBS	4	4	3
Basic cable	31	30	34
Pay cable	4	4	4

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	16	16	14
CBS affiliates	13	12	15
NBC affiliates	15	14	16
Fox affiliates	9	9	8
Independents	7	10	2
PBS	3	3	3
Basic cable	44	43	47
Pay cable	6	6	6

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	21	21	20
CBS affiliates	23	19	31
NBC affiliates	20	18	23
Fox affiliates	15	15	14
Independents	15	20	3
PBS	5	5	5
Basic cable	3	2	4
Pay cable	-	-	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994–Nov. 27, 1994).

Table K-4

Audience share Monday–Friday 7:00–7:30 P.M.

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	22	23	19
CBS affiliates	19	17	22
NBC affiliates	17	14	22
Fox affiliates	12	13	12
Independents	11	15	3
PBS	3	3	2
Basic cable	22	22	24
Pay cable	3	3	3

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	20	22	18
CBS affiliates	16	15	18
NBC affiliates	16	13	21
Fox affiliates	11	11	11
Independents	11	14	3
PBS	2	3	2
Basic cable	32	32	34
Pay cable	4	4	4

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	25	26	23
CBS affiliates	23	20	30
NBC affiliates	19	16	24
Fox affiliates	15	15	15
Independents	13	18	2
PBS	4	5	3
Basic cable	2	2	3
Pay cable	-	-	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994–Nov. 27, 1994).

Table K-5

Audience share Monday–Friday 7:30–8:00 P.M.

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	21	22	19
CBS affiliates	18	17	20
NBC affiliates	16	13	22
Fox affiliates	12	13	10
Independents	11	15	3
PBS	3	4	3
Basic cable	25	23	27
Pay cable	3	3	3

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	19	21	16
CBS affiliates	16	15	17
NBC affiliates	15	13	20
Fox affiliates	11	11	9
Independents	10	14	3
PBS	3	3	3
Basic cable	36	34	39
Pay cable	4	5	4

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	25	25	27
CBS affiliates	23	22	27
NBC affiliates	19	15	26
Fox affiliates	15	16	12
Independents	13	18	2
PBS	5	5	4
Basic cable	2	2	3
Pay cable	-	-	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994–Nov. 27, 1994).

Table K-6

Audience share Monday–Friday 8:00–8:30 P.M.

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	18	18	19
CBS affiliates	18	17	20
NBC affiliates	19	18	20
Fox affiliates	13	14	11
Independents	9	12	3
PBS	4	4	4
Basic cable	27	26	31
Pay cable	4	4	4

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	16	17	16
CBS affiliates	15	15	16
NBC affiliates	17	17	18
Fox affiliates	12	13	11
Independents	8	10	3
PBS	3	3	3
Basic cable	39	37	43
Pay cable	5	6	5

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	23	21	27
CBS affiliates	24	22	29
NBC affiliates	21	20	23
Fox affiliates	15	16	12
Independents	13	18	2
PBS	6	7	5
Basic cable	2	2	3
Pay cable	-	-	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994–Nov. 27, 1994).

Table K-7

Audience share Monday-Friday 8-11 P.M.

All television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	21	21	22
CBS affiliates	19	18	21
NBC affiliates	19	19	20
Fox affiliates	11	12	9
Independents	9	12	3
PBS	4	4	3
Basic cable	27	26	31
Pay cable	4	4	4

Cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	20	20	19
CBS affiliates	17	16	17
NBC affiliates	18	18	18
Fox affiliates	10	11	8
Independents	7	9	3
PBS	3	3	3
Basic cable	39	37	43
Pay cable	6	6	5

Non-cable television households

Program source	All markets	PTAR markets	Non-PTAR markets
ABC affiliates	25	23	29
CBS affiliates	24	22	30
NBC affiliates	22	22	24
Fox affiliates	14	15	11
Independents	13	17	2
PBS	6	6	5
Basic cable	2	1	3
Pay cable	-	-	1

Source: NIELSEN TELEVISION INDEX, SPECIAL ANALYSIS, (Oct. 31, 1994-Nov. 27, 1994).